

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

AF/3836#  
#10  
M.P.  
10/2/03

In re Application of: )  
James John Wilson et al. )  
For: REDUCED NOISE MULTI- )  
RIBBED POWER TRANSMISSION )  
BELT )  
Serial No. 09/893,156 )  
Filed: June 27, 2001 )

Confirmation No. 3836  
Docket No. DN2001117  
Art Unit: 3682  
Examiner: Justin Stefanon

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on

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Nancy T. Krawczyk - Reg. No. 38,744  
(Name of Applicants, Assignee or Registered Representative)

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Dear Sir:

**APPEAL BRIEF**

Filed herewith please find Applicants' Appeal Brief, filed in triplicate, pursuant to 37 C.F.R.

Please charge Deposit Account No. 07-1725 in the amount of Three Hundred Twenty and 00/100 Dollars (\$320.00) to cover the fee for filing this Brief in support of this Appeal. Any deficiency or overpayment should be charged to this Deposit Account.

Respectfully submitted,

Nancy T. Krawczyk - Reg. No. 38,744  
Attorney for Applicants

The Goodyear Tire & Rubber Company  
Department 823  
1144 East Market Street  
Akron, Ohio 44316-0001  
Telephone: (330) 796-6366

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## **APPEAL BRIEF**

### **Real Party in Interest**

The real party in interest of the present application is The Goodyear Tire & Rubber Company.

### **Related Appeals and Interferences**

There are no related appeals or interferences.

### **Status of Claims**

Claims 1-5 are pending in the application. Claims 1-5 stand rejected.

### **Status of Amendments**

There are no outstanding amendments. No amendments have been filed following the final rejection.

### **Summary of the Invention**

The present invention is directed to a power transmission belt with improved noise characteristics.

Every power transmission belt, including that of applicants, has a longitudinal axis and a transverse axis. For the present invention, the longitudinal direction is indicated by the arrow L in Figure 1. The transverse direction of the belt is perpendicular to the longitudinal direction. It is conventional in the power transmission belt art to identify the longitudinal direction of the belt as the longest axis of the endless belt, the belt travels along the longitudinal direction of the belt. The transverse direction of the belt extends from one longitudinal side of the belt to the opposing longitudinal side of the belt.

In the present application, the belt has multiple parallel longitudinal grooves 19 and a plurality of transverse grooves 20. The transverse grooves 20 are inclined at an angle  $\alpha$  other than perpendicular to the longitudinal direction L (para 10) and are spaced along the longitudinal direction of the belt. The combination of longitudinal grooves 19 and the transverse grooves 20 form a plurality of cogs 21. The cogs 21

extend upward from the groove base, see Figure 2. The cogs 21 between a pair of transverse grooves 20 forms a cog row 22.

The longitudinal length between the transverse grooves 20 is defined as the pitch length P of the cogs 21. Each cog row 22 has a defined pitch length P. In accordance with the invention, the longitudinal pitch length P of adjacent rows may not be identical. Along the entire longitudinal length of the belt, the pitch lengths are randomly arranged (pg 3, unnumbered paragraph). The randomization of the pitch lengths around the belt length break up any repeating noise harmonics and reduces the overall belt noise.

### Issues

- I. Is the subject matter set forth in claims 1 - 4 anticipated under 35 U.S.C. § 102(b) by Wong et al (US Patent 5,215,504)?
- II. Is the subject matter set forth in claims 1 - 5 obvious under 35 U.S.C. § 103 (a) over Miranti, Jr (US Patent 5,055,090) in view of Janne (US Patent 5,382,198)?

### Grouping of Claims

Claims 1 - 5 are grouped together and stand or fall together.

### Arguments

- I. Claims 1 - 4 stand rejected as anticipated by Wong et al under 35 U.S.C. § 102(b).

*A person shall be entitled to a patent unless  
(b) the invention was known or used by others in this country, or  
patented or described in a printed publication in this or a foreign  
country, before the invention thereof by the applicant for patent*  
35 U.S.C. § 102(b)

Wong is cited for disclosing a timing belt having "transverse grooves 18 and grooves 12, which are straight and therefore extend longitudinally ... the transverse and longitudinal grooves form rows of cogs 13 which are randomly arranged along

the entire length of the belt and have at least six different longitudinal lengths" (Office Action, mailed 3/11/03).

Applicant takes exception to this mischaracterization of Wong.

Wong discloses a timing belt 10 that has a series of teeth 13 extending from the main portion 11 of the belt. Each tooth 13 is followed by a "land or valley thereof" (col 3, lines 10-15). The land or valley portions are identified as 12 in Figures 2a and 2b. Cut into the teeth are randomly patterned, spiral shaped grooves 18 (Figure 2a; col 3, lines 15-17).

In order to determine if Wong anticipates the claimed invention, the longitudinal and transverse directions must be established.

In regard to Figures 2a and 2b, Wong never specifically identifies the longitudinal or the transverse directions of the belt. However, one skilled in the art looking at the wavy, or broken, lines, at the right and left edges of Figures 2a and 2b would understand that the draftsman was indicating that the product continues on each direction from the wavy lines and the longitudinal direction L of the belt is from right to left with respect to the drawings, see Exhibit 1. This position is supported by Wong's statements with regard to Figures 4a and 4b wherein the similar teeth 24 and lands 25 "alternate with each other throughout the length of the belt" (col 3, lines 50-53). And by definition, the transverse direction is perpendicular to the longitudinal direction, see Exhibit 1.

The claim recites that the "rows of cogs have at least three different longitudinal lengths." The teeth 13 of Wong are identified in the rejection as the recited transverse rows of cogs and states that the teeth 13 of Wong are "randomly arranged along the entire length of the belt and have at least six different longitudinal lengths." As clearly evidenced in Figures 2a and 2b, each tooth 13 of Wong has the same longitudinal length. There is no teaching in Wong that the teeth 13 have different longitudinal lengths. Wong discloses that the teeth 13 are subdivided into smaller teeth portions (see 13a, 13b, ...in Exhibit 1) by the grooves 18. The teeth portions have different transverse lengths, but the longitudinal length of each tooth portion is identical.

Furthermore, to hold in the Office Action that the different transverse lengths of the teeth meets the claimed limitation of different longitudinal lengths contradicts the position in the rejection which held that grooves 18 meets the recitation of

"longitudinally extending grooves" as the lands 12 are straight and "therefore extend longitudinally."

Should the examiner continue to maintain this position, it is respectfully requested that a marked up copy of Figures 2a and 2b of Wong et al, showing the longitudinal and transverse directions of the belt and the specific alleged different longitudinal length cogs be provided. Other than stating that the grooves 18 do have a longitudinal dimension, the Examiner has yet to ever address the arguments set forth above, though this very argument has been presented in response to both Office Actions.

In order for a reference to fully anticipate a claim under 35 U.S.C. § 102, the reference must disclose each and every element of the claimed invention. Wong et al fails to disclose that the rows of cogs have at least three different longitudinal lengths. Thus Wong et al fails to anticipate the claimed invention.

II. Claims 1 - 5 stand rejected under 35 U.S.C. § 103(a) as obvious over Miranti, Jr, in view of Janne.

*A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.*

35 U.S.C. § 103(a)

Miranti is cited as disclosing the "claimed invention except for the transverse grooves being not perpendicular to the longitudinal direction of the belt." Janne is applied for the teaching of the transverse grooves being inclined.

Miranti discloses an endless power transmission belt 20 having multiple longitudinal grooves 26 and transverse grooves 28 that form rows of cogs. Miranti teaches that to improve the noise characteristics of the belt, the depths of the transverse grooves may be varied along the length of the belt. Miranti discloses that

the depths may be varied, or the spacing between the grooves may be varied, or both may be varied together. Miranti also teaches that the variations are randomly arranged in sequences, and the sequences are repeated around the length of the belt.

In comparison to the claims, Miranti fails to disclose inclining the transverse grooves as recited, and that the rows of differing lengths are "randomly arranged along the entire length" of the belt as recited. As noted, Miranti teaches that there can be random arrangements of the different lengths, but these random arrangements, and even ones based on mathematical equations, are arranged in sequences, which are then repeated along the length of the belt. Once the sequence is repeated, then a pattern is generated, and there is no random arrangement along the entire length of the belt.

As recited and disclosed by Applicants, the variation of the cog length along the entire belt longitudinal length is a random generation, with there being no repeated sequence that follows a previous sequence as taught by Miranti.

Janne is applied to teach that the transverse grooves may be inclined as recited at an angle of less than 90° relative to the longitudinal direction of the belt.

While it may be within the purview of one skilled in the art to chose to incline the grooves of Miranti to achieve the effects of eliminating the hinge points as taught by Janne, the belt of Miranti as modified by Janne still fails to have the longitudinal lengths of the cog rows should be "randomly arranged along the entire length of the belt" as recited.

It has been argued in the Final Office Action that it "would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide a random arrangement of pitch lengths along the entire belt instead of in a sequence, as Miranti teaches in column 4, lines 56-63, that the lengths may simply be randomly arranged."

In column 4, lines 56-63, Miranti is referencing the belt of Figures 3 and 4. The belt is defined by a repeating sequences of varying groove depths (col 4, lines 29-55). In a further variation of the belt of Figures 3 and 4, Miranti discloses that the spacings "s" between the grooves "could be randomly staggered." Miranti does not state that the randomly staggered spacings occurs over the entire belt and never gives any indication that such should or could be done. Miranti does go on and disclose a belt with "generally random staggered spacing[s]" (col 6, lines 28-43). These

randomly staggered spacings are arranged into a sequence that is then repeated along the entire length of the belt (col 6, lines 34-40).

Since Miranti teaches that when a randomly staggered spacing is used, it is arranged into a sequence which is then repeated in regard to the belt of Figure 7, those skilled in the art would appreciate that, even when used in the context of the belt of Figures 3 and 4, the randomly staggered spacings would be arranged in a repeating sequence along the length of the belt in combination with the sequence of varying groove depths.

There is nothing in Miranti as modified by Janne that teaches those skilled in the art that any variation of the belt features, either the groove depths or the spacing of the grooves, could be randomly arranged along the entire length of the belt as recited.

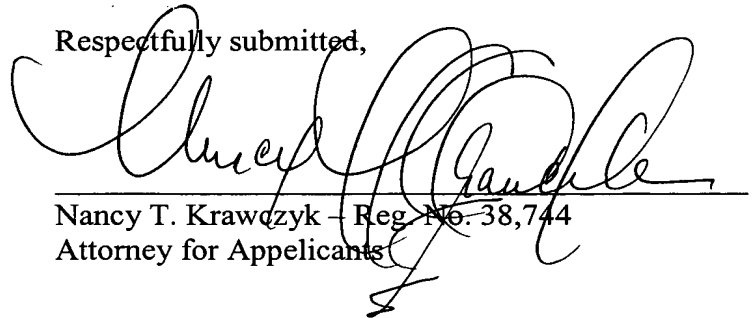
In Paragraph 4 of the Final Office Action, it is also stated that "it is within the ordinary level of skill in the art to provide the random sequence throughout the belt." Thus, it is apparently acknowledged that Miranti does not, in fact, teach providing a random sequencing of the different cog lengths along the full belt width.

However, the statement is contrary to the specific teachings of Miranti who always teaches repeating sequences. To simply assert something contrary to the teachings of the primary reference without any specific teaching either in the primary reference or in a supporting reference or something else that establishes that it would have been obvious or "within the ordinary level of skill in the art" fails to establish a case of *prima facie* obviousness.

To establish *prima facie* obviousness, there 1) must be some suggestion or motivation in the art to modify or combine the references; 2) must be a reasonable expectation of success and 3) the combined references must teach or suggest all the claim limitations. Miranti as modified by Janne fails to teach or suggest all the claim limitations as recited by Applicants. As discussed above, there is no suggestion or motivation in either Miranti or Janne to modify the belt of Miranti for a non-repeating random pattern of cog widths along the length of the belt.

It is respectfully requested that the rejection of the claims as being obvious over Miranti, Jr. in view of Janne be withdrawn.

Respectfully submitted,

A large, stylized handwritten signature in black ink, appearing to read 'Nancy T. Krawczyk', is written over a horizontal line.

Nancy T. Krawczyk - Reg. No. 38,744  
Attorney for Appellants

The Goodyear Tire & Rubber Company  
Department 823  
1144 East Market Street  
Akron, Ohio 44316-0001  
Telephone: (330) 796-6366  
Facsimile: (330) 796-9018



## CLAIMS

1. A power transmission belt having an inner surface comprising longitudinally extending grooves and transverse grooves, the transverse grooves are inclined at an angle less than  $90^\circ$  relative to the longitudinal direction of the belt and all the transverse grooves have the same groove depth, the transverse and longitudinal grooves form transverse rows of cogs on the belt inner surface, wherein the rows of cogs have at least three different longitudinal lengths, and the rows of differing lengths are randomly arranged, in a non-sequential manner, along the entire length of the belt.
2. A belt in accordance with claim 1 wherein the belt is characterized by the rows of cogs having three different longitudinal lengths.
3. A belt in accordance with claim 1 wherein the belt is characterized by the rows of cogs having three to six different longitudinal lengths.
4. A belt in accordance with claim 1 wherein no more than four longitudinally adjacent rows of cogs have the same longitudinal length.
5. A belt in accordance with claim 1 wherein the belt has three different longitudinal lengths, the smallest length being designated as 1, the medium length being designated as 2, and the largest length being designated as 3, and the sequence around the entire belt is 3 3 3 2 1 2 3 2 3 2 1 1 2 1 1 2 1 2 3 1 3 3 1 2 2 2 1 3 1 2 1 3 1 1 1 2 3 3 2 2 2 3 2 1 1 3 3 3 2 1 2 3 2 3 3 2 1 2 2 1 1 3 2 1 2 3 1 1 3 1 2 3 2 1 1 3 1 2 2 3 3 3 1 1 3 3 2 3 1 1 1 2 2 3 2 1 1 2 1 3 3 2 3 3 2 2 3 3 1 1 3 2 1 2 2 1 1 3 2 2 3 3 3 1 2 2 1 1 1 2 3 2 3 1 1 1 2 1 2 2 3 3 1 1 3 2 1 3 3 2 3 1 3 3 2 3 2 1 2 3 1 3 1 1 2 1 2 1 2 3 2 3 3 3 1 1 2 1 2 3 2 2 2 2 3 3 2 1 1 3 2 3 2 3 1 2 2 1 2 1 3 1 1 1 1 3 2 1 2 1 3 3 2 3 2 1 2 1 2 3 2 1 2 2 3 1 1 1 3 1 3 1 3 2 3 3 2 1 1 2 3 1 2 2 3 2 3 3 3.